

311-CD-107-005

EOSDIS Core System Project

**Release 4 Science Data Server Database
Design and Schema Specifications
for the ECS Project**

Final

March 1999

**This document has not yet been approved by the
Government for general use or distribution.**

Raytheon Systems Company
Upper Marlboro, Maryland

Release 4 Science Data Server Database Design and Schema Specifications for the ECS Project

Final

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Preface

This document describes the data design and database specification for the Science Data Server Subsystem. It is one of eight documents comprising the detailed database design specifications for each of the ECS subsystems.

The subsystem database design specifications for the as delivered system include:

311-CD-102 Data Management (DM) Subsystem Database Design and Database Schema Specifications for the ECS Project

311-CD-103 Ingest Subsystem Database Design and Database Schema Specifications for the ECS Project

311-CD-104 Interoperability Subsystem (IOS) Database Design and Database Schema Specifications for the ECS Project

311-CD-105 Management Support Subsystem (MSS) Database Design and Database Schema Specifications for the ECS Project

311-CD-106 Planning and Data Processing Subsystem (PDPS) Database Design and Database Schema Specifications for the ECS Project

311-CD-107 Science Data Server (SDSRV) Subsystem Database Design and Database Schema Specifications for the ECS Project

311-CD-108 Storage Management (STMGMT) Subsystem Database Design and Database Schema Specifications for the ECS Project

311-CD-109 Subscription Server (SUBSRV) Subsystem Database Design and Database Schema Specifications for the ECS Project

This submittal meets the milestone specified in the Contract Data Requirements List (CDRL) of NASA Contract NAS5-60000. It is a formal contract deliverable with an approval code 1. It requires Government review and approval prior to acceptance and use. This document is under ECS contractor configuration control. Once approved, contractor approved changes will be handled in accordance with Class I and class II change control requirements described in the EOS Configuration Management Plan, and changes to this document shall be made by Document Change Notice (DCN) or by complete revision.

Entity Relationship Diagrams (ERDs) presented in this document have been exported directly from tools and some cases contain too much detail to be easily readable within hard copy page constraints. The reader is encouraged to view these drawings on-line using the Portable Document Format (PDF) electronic copy available via the ECS Data Handling System (ECS) on the world-wide web at <http://edhs1.gsfc.nasa.gov>.

Any questions should be addressed to:

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Abstract

This document outlines Release 4 Drop 4PX “as-built” database design and database schema of the Science Data Server Subsystem database including the physical layout of the database and initial installation parameters.

Keywords: data, database, design, configuration, database installation, scripts, security, data model, data dictionary, replication, performance tuning, SQL server, database security, replication, database scripts

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Appendix A. Science Data Server ERDs

Abbreviations and Acronyms

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1. Introduction

1.1 Identification

This Science Data Server Subsystem (SDPS) Database Design and Database Schema Specification document, Contract Data Requirement List (CDRL) Item Number 050, whose requirements are specified in Data Item description (DID) 311/DV1, is a required deliverable under the Earth Observing System (EOS) Data and Information System (EOSDIS) Core System (ECS), Contract NAS5-60000.

1.2 Scope

The SDSRV Database Design and Database Schema Specification document describes the data design and database specifications to support the data requirements of Release 4 Drop 4PX SDSRV software.

1.3 Purpose

The purpose of the SDSRV Database Design and Database Schema Specification document is to support the maintenance of SDSRV data and databases throughout the life cycle of ECS. This document communicates the database implementation in sufficient detail to support ongoing configuration management.

1.4 Audience

This document is intended to be used by ECS maintenance and operations staff. The document is organized as follows:

Section 1 provides information regarding the identification, purpose, scope and audience of this document.

Section 2 provides a listing of the related documents, which were used as a source of information for this document.

Section 3 provides a mapping data bases to hardware components.

Section 4 contains the SDSRV physical data model which is the database tables, triggers, stored procedures, and flat files.

Section 5 provides a description of database performance and tuning features such as indexes, caches, and data segments.

Section 6 provides a description of the security infrastructure used and list of the users, groups, and permissions available upon initial installation.

Section 7 provides a description of database and database related scripts used for installation, de-installation, backup/recovery, and other miscellaneous functions.

2. Related Documents

2.1 Applicable Documents

The following documents, including Internet links, are referenced in this document, or are directly applicable, or contain policies or other directive matters that are binding upon the content of this volume.

305-CD-100	V 2.0 Segment Design Specification for the ECS Project
910-TDA-015	Drop 4P1 Domains and Baseline Data
910-TDA-016	Drop 4PL Domains and Baseline Data
920-TDG-009	DAAC Hardware Database Mapping/GSFC
920-TDN- 009	DAAC Hardware Database Mapping/NSIDC
920-TDE-009	DAAC Hardware Database Mapping/EDC
920-TDL-009	DAAC Hardware Database Mapping/LARC
920-TDS-009	DAAC Hardware Database Mapping/SMC
920-TDG-010	DAAC Database Configuration/GSFC
920-TDN-010	DAAC Database Configuration/NSIDC
920-TDE-010	DAAC Database Configuration/EDC
920-TDL-010	DAAC Database Configuration/LARC
920-TDS-010	DAAC Database Configuration/SMC
922-TDG-013	Disk Partitions/GSFC
922-TDN-013	Disk Partitions/NSIDC
922-TDE-013	Disk Partitions/EDC
922-TDL-013	Disk Partitions/LARC
922-TDS-013	Disk Partitions/SMC

These documents are maintained as part of the ECS baseline and available on the world-wide web at the URL: <http://cmdm.east.hitc.com/baseline>. Please note that this is a partial mirror site in that some items are not available (they are identified) since this is OPEN to all. This site may also be reached through the EDHS homepage. Scroll page to the connections line and click on the ECS Baseline Information System link.

2.2 Information Documents

The following documents, although not directly applicable, amplify or clarify the information presented in this document. These documents are not binding on this document.

313-CD-006 Release 4 CSMS/SDPS Internal ICD for the ECS Project

609-CD-003 Release 4 Operations Tools Manual for the ECS Project

611-CD-004 Release 4 Mission Operation Procedures for the ECS Project

These documents are accessible via the EDHS homepage.

3. Database Configurations

3.1 Server Configurations

The database configuration of the server varies from DAAC to DAAC based on individualized DAAC requirements and hardware availability. These DAAC-specific database configurations are detailed on the following documents:

920-TDG-009	DAAC Hardware Database Mapping/GSFC
920-TDN- 009	DAAC Hardware Database Mapping/NSIDC
920-TDE-009	DAAC Hardware Database Mapping/EDC
920-TDL-009	DAAC Hardware Database Mapping/LARC
920-TDS-009	DAAC Hardware Database Mapping/SMC

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3.2 Storage Device Layouts

Storage Device layouts, disk partitions, vary from DAAC to DAAC based on the amount of data storage expected to be needed to accommodate a particular DAAC's storage requirements. Disk partitions for the PDPS server at each DAAC is detailed in the following documents:

922-TDG-013	Disk Partitions/GSFC
922-TDN-013	Disk Partitions/NSIDC
922-TDE-013	Disk Partitions/EDC
922-TDL-013	Disk Partitions/LARC
922-TDS-013	Disk Partitions/SMC

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